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THE FUNCTION AND EFFICIENCY OF THE AGRICULTURAL COLLEGE

IT would be an indication of ingratitude and inappreciation if I failed to acknowledge at this time the great honor of being elected to preside over your deliberations, an honor commensurate with the distinguished history and eminent usefulness of this association. Because it has been my good fortune to attend these meetings from their very beginning, in addressing you on this occasion I can not be accused of speaking without knowledge and understanding if at first I refer in the spirit of congratulation to the benefits of this organization, both for those of us who have participated in its deliberations and for the institutions which it represents.

Not the least important outcome of these assemblages are the personal relations that have been established. The hand clasp that has spanned a continent has not only made possible the formation of friendships that have greatly enriched our lives, but thereby has come a sympathetic touch of laborers in the same field so essential to unity of purpose and understanding. We would all feel impoverished, personally and officially, if there were withdrawn from the sum of our life experiences the beneficent results of the intercourse that these meetings have afforded.

Because we are friends as well as coworkers, we keenly feel the absence from our midst of those who have passed out of life's activities. Two of the best beloved of our long-time associates have entered into their final rest during the year that has passed. For many years these gather-

ings were favored by the gentle and refined presence of Matthew H. Buckham, who through a long life of activity as an educator exhibited the qualities of a scholar and a gentleman. May many rise up with a similar type of mind and character to mold the intellect and purposes of coming generations! We shall not forget the kindly spirit, the manly attributes, the singleness of purpose and the efficient service of Edward B. Voorhees, whose life and activities were on a plane so high that they presented an inspiring example of useful living. The number remaining of those who aided in founding and building these new educational agencies and who are still in active service is small, and these pioneers in an undeveloped field can but feel that they are transferring to "other men and other minds" the abundant fruit of their labors.

Again, this association has been an active and most influential agency in augmenting the resources of the institutions from which you come, and in developing and unifying their administrative and pedagogical methods. Through your accredited representatives an influence, national in scope, has been focused upon legislation. The enlarged financial support of the colleges and stations by the federal government could hardly have been secured without your united effort, directed along an authorized channel. You must also recognize very clearly that your annual discussions have been helpful, even essential, to the wise solution of administrative and educational problems. Probably no other influence has been more potent in hastening and shaping the far-reaching readjustment that has been effected during the past few decades in the aims and methods of education, even in our secondary schools, than has the example and propaganda of the institutions arising from the first Morrill act, an influence to which your deliberations have served to give form and purpose.

But the main reason for extending congratulations to you at this time is the status and beneficent results of the activities here represented. It would be easy to show the marvelous growth of the equipment and work of the land-grant colleges and agricultural experiment stations by the use of statistics that are almost startling in their proportions. I shall not resort to this method, however, for you know the facts, and besides, the prominent display of such large figures savors of showy parade or of vainglorious pride. It is enough to say that as a whole these wards of the nation and states are liberally equipped as to buildings, apparatus and funds, with a disposition on the part of the state governments to provide for increasing demands in these directions; students are not lacking, practise both in agriculture and engineering is giving respectful attention to your utterances; all this indeed because after nearly five decades of strenuous and almost heart-breaking struggle, whatever have been your mistakes, you have demonstrated your right to exist and thereby have won public confidence. The colleges and stations for whose upbuilding you have labored hard and loyally are now public utilities of great importance. They are an intelligent and directive force in the conservation of our resources, both social and material. In brief, these institutions have come to be a national asset of great and permanent value.

But now that the hardships and discouragements incident to the establishment of the new and the untried are past and public confidence is won, now that you are reasonably well equipped and have the plastic minds of thousands of young men

and women with which to work your will, the time has come to ask this question: Are these agencies, established and maintained by public funds, doing work of a kind and in a manner, under the conditions which have developed, that is calculated to most fully promote public welfare? No one will deny the assertion, I am sure, that the colleges were brought into existence, not for the purpose of providing a fraction of one per cent. of our young men and women with a college education as an individual favor, but to be constructive and conserving factors in building and maintaining a strong nation. "The community has come to be convinced that education is the most competent means for the preservation and enrichment of itself." With this end in view, is their work wisely planned and directed?

A consideration of this comprehensive question requires that we bring to mind the directions along which the colleges and stations exert their influence in the exercise of their proper functions. These directions are mainly three:

1. The public relations of educational agencies.

2. The enlargement of the body of knowledge.

3. The development of the vocational and social efficiency of the individual.

It is my purpose to direct your attention chiefly to questions involved in the college training of young men and women and the development of knowledge, but I ask your indulgence while I briefly refer to the first phase of influence which I have mentioned:

As to the influence of the land-grant legislation and its results upon the public or governmental relations of educational agencies, there can be no doubt that one of the consequences of this legislation is a strong movement toward the injection of federal aid, and the federal control necessarily, accompanying the expenditure of federal money, into secondary education that so far has been exclusively supported and controlled by the states. The concrete expression of this movement is the introduction into congress of bills providing for the annual expenditure of vast sums of federal money in aid of normal schools and high schools in the various states. The policy proposed, if made effective, would have far-reaching results and for this reason it should be considered by this body in the spirit of wise statesmanship with reference to ultimate results rather than on the basis of any immediate financial advantage that might accrue to states or institutions.

It is well for us to keep in mind this law so well formulated by an educator of long experience, "that the efficiency of public education becomes the greater as the responsibility for carrying it forward is more directly and immediately felt." This admirable expression of a sound principle may be supplemented by the statement that an efficient system of public education can not be imposed upon a community by aid from without, but must be gradually developed from within.

Moreover, the broadcast precipitous distribution of public funds into localities where there does not exist the understanding and preparation necessary to their wise expenditure is sure to result in lamentable waste. This would be a less regrettable result, however, than the influence of outside aid upon the spirit of initiative and self-dependence of the people, in the absence of which no progress is made in any enterprise whatever. The school-district system once widely in vogue in the eastern states, where each political unit was practically a pure democracy, while expensive, possessed certain advantages of simplicity

and directness because of the close relation of the citizen to the school. It was a system that gave large latitude to the individual development of boys and girls and was far removed from the mechanisms of highly concentrated systems that are inelastic and attempt to force square boys and girls through round holes. While the old system would not meet existing conditions, which, for reasons of economy, require a closer organization and a fuller concentration of authority, we should avoid, so far as possible, the dangers of bureaucracy in school administration that are by no means unreal. The injection of federal aid and authority into local educational affairs could but increase the dangers to educational freedom that always attend a highly centralized administration; and, above all other considerations in importance, such a policy is in the direction of removing the citizen too far from his direct responsibility, even through taxation, for the maintenance of local institutions. The exercise of citizenship, involving as it should a discussion of public matters and a sacrifice of time and money, has great training value and is an essential means of attaining the civic efficiency necessary to our form of government. Have we any reason to doubt that the states will provide for advances in secondary education as rapidly as public sentiment, available pedagogical tools and opportunity will justify new movements? The progress already made in several states indicates that we have not.

There are those who declare that the advance of nationalism, even in the control of education, is irresistible. It is encouraging to note that there are already signs of an action against this movement. Whatever comes to pass, we should be warned that any readjustment of the relations of government to education which does not fully preserve the autonomy of the states, and to a reasonable degree, of localities within the states, in the administration of educational matters, would be repugnant to the spirit of our institutions, and a revolutionary and dangerous innovation.

I shall introduce the other phases of this discussion by the assertion that the chief and absorbing aim of the college, whether it be subsidized by private endowment or by public funds, should be the training of young men and women in a manner and to a degree that is consistent with well-recognized college standards. This statement, regarded by many as expressing an obvious truth, is given prominence in this connection not because there is any ambiguity in the language of the first Morrill act, which specifies very clearly the function of the proposed institutions, but because in recent years these colleges are moving with accelerated momentum towards agricultural activities, costly in time and money, that have only a remote relation to the training of their students. I refer to public addresses, farmers' institutes, reading courses, demonstration work, railroad-train instruction, fair exhibits, secondary education and similar efforts that just now seem to be increasing rapidly in volume and in their demands.

Because many of these activities are more or less spectacular and are popular in character, they certainly attract attention and stimulate interest both in the agencies which participate in them and in the knowledge which it is sought to impart. For these reasons they are very useful. Doubtless many of us upon whom is laid the burden of administering the affairs of the colleges and stations and of securing the funds necessary for their development and maintenance regard extension work of

various kinds not only as rendering a real public service, but as an efficient means of securing the public favor that insures generous support. It would be an interesting problem, psychological, ethical or otherwise, to determine in what proportions altruism and expediency enter into the motives that lie behind some of our agricultural propaganda.

But, setting aside the question of motives, there is every justification for declaring that in so far as these popular efforts, and secondary education within the college, minimize academic efficiency through the diversion or limitation of funds, through their absorption of the time and energy of teachers or through their reaction upon the atmosphere of the college and its standards of instruction, in so far the lesser is usurping the greater. It is fully recognized that this assertion is antagonistic to the view that extension work is a function of the agricultural college coordinate with, and of equal importance with, the training of young men and women, to be maintained on an equal footing as to development and permanence, and it is so meant. It may further be said that because of the strong trend towards the popularization of agricultural knowledge both within the college and station and without, because of the sweep and strength of the agricultural extension movement which is taking such diverse forms and is so largely occupying the thought and energy of college and station leaders, there has never been a more critical period in the life of the colleges and stations or a time in which their efficiency for the accomplishment of their primal and fundamental purpose should be more carefully guarded.

The gravity of the situation is augmented by the fact that the agricultural and business interests of the country, alive to the value of our worth, are now proposing to us what we shall do and are urging upon us not only efforts of our own, but our active support of new efforts that are outside our province, but to which we are expected to sustain relations of advice and aid. These suggestions, which sometimes are almost equivalent to demands, are certainly made in the spirit of goodwill and helpfulness and are always worthy of our most respectful and careful consideration, but it is seriously to be doubted whether popular conceptions of the aims and methods of education and inquiry are a safe basis on which to establish the policy that shall dominate the work and influence of either the college or station.

The chief reason that will here be advanced for directing the means and energy of the land-grant colleges along the higher ranges of educational effort is that under the conditions now existing these institutions will most fully promote public welfare by devoting their resources mainly to preparing men and women for leadership. Our social and vocational future is largely a matter of leadership. He is wildly utopian who prophesies a day when all the people, or even a majority, will possess the knowledge and ability necessary to a wise discrimination in civic and economic affairs. It is equally fanciful to hope that any large proportion of actual farmers will ever be college-trained. Secondary education must serve the needs of the great majority of the occupants of the land. In the past the reaction of the agricultural college upon public welfare has been largely through men who have become investigators, teachers, publicists and managers of large agricultural enterprises rather than through the distribution of practical farmers.

What has been true of the past seems likely to be increasingly the experience of

the future, and this fact in no way minimizes the value of the college in agricultural affairs. We ignore the teachings of all human experience if we look for the time when the destinies of the nation and the interests of agriculture or of any vocation will not be safeguarded by a small minority of citizens whose training has placed them outside the domination of dangerous sentiment and ignorant prejudice and who possess that power of discrimination derived from a knowledge of fundamental principles, without which we may not expect an intelligent and judicial consideration of either vocational or public questions.

Not only are we greatly dependent upon wise leadership in both social and industrial affairs, but with the college lies the opportunity for its development. It is among the young men and women who seek the advantages of college instruction that we find those who, because of ambition and capacity, constitute material with the largest possibilities of future usefulness. If the college fails in wisely molding these plastic minds it fails to fully occupy its one great opportunity, and if, on the other hand, the training given is inadequate or unbalanced or in any way less effective than is reasonably possible, both the receptive student and the public are defrauded and suffer a loss that can scarcely be made good.

Not all college graduates will be leaders, and not all leaders will possess a college degree; but it is a fact worthy of emphasis that the opportunity of the college is with the few and not with the many. Only a very small proportion (perhaps one or two in a hundred) of any generation of men and women will come into extended contact with college life, and these few will be the medium through which the college will render its largest and most effective service. The college can never come into efficient touch with the many as it does with the few. Whatever direct influence it secures over the general public lacks concentration and continuity; in fact, is diffuse and indefinite. Experience and observation show that a discouraging proportion of the minds reached by the attempts at popular instruction are either irresponsive or incapable and the constructive value of these efforts is not to be compared with the life-long example and influence of those who are adequately trained for social and industrial leadership.

There are those, doubtless, who believe that these institutions, supported by public funds, should stand in especially close relation to the people and that in order to do the work for which they were organized they should establish a low grade of admission, occupy a secondary place in our educational scheme, adhere closely to instruction of an ultra-vocational character and engage extensively in agricultural propaganda, leaving to the older colleges and universities the severer training that is required in preparing men and women for the higher ranges of thought and activity. It is to be hoped that if we have in any measure adopted this policy we shall move away from it as rapidly as circumstances will permit. Such a policy is a practical assumption that there is no place in the agricultural field for the highest type of intellectual development and equipment, an assumption to which no well-informed student of social and economic conditions is likely to consent. If we also take into consideration the fact that the dignity and importance of agricultural opportunities receive little emphasis in those institutions where the main trend of thought and training is in other directions, we see sufficient reasons why the agricultural college should not relegate to other agencies its clearly

indicated function—the production of the leadership that is needed for advancing the interests of the farm.

And so, because of the unsatisfied demand for adequately trained teachers and investigators, because of the complex and difficult problems related to farm life that insistently face us, so many of which are unsolved, because the redirection and upbuilding of rural-life institutions need for their accomplishment the guidance of leaders of a high order of ability, and because of the greatly increasing demand for service in these several directions which is only partially met, should we not insist that the material resources and the human knowledge at the command of the agricultural college and the plans and purposes there nourished should be directed toward sound inquiry and the training of young men and women for such service as will only be rendered by the few. Until we have means beyond what can reasonably be expended in increasing the efficiency of the colleges and stations is it a wise policy to assign to other purposes funds that should be applied to securing and holding teachers and investigators of large attainments and success, those who are masters in their special fields? Agriculture needs more of such men and should be able to create for them a favorable environment for their work.

And we now come to a question towards which this discussion has been aiming from the very first. What conditions should prevail in college instruction and what results should be kept in view in the training of young men and women for vocational and social leadership?

In considering this question we may well begin by asking what qualities should be possessed by those who are to enter effectively into the service of agriculture and country life. There can be but one answer. They are the same fundamentally that are essential to efficiency and well rounded success in any calling or profession. If the teacher, the investigator, the statesman, the lawyer or the business man should possess integrity of thought and purpose, be able to reason keenly and base their reasoning on fundamental and well-grounded principles, so should those who are to assume responsibility and leadership in agricultural affairs. There is no place for loose thinking and the empiricisms of superficial knowledge in the consideration of the economic and social problems pertaining to the open country. It is hardly conceivable, either, that the college will succeed in developing in its students these necessary qualities by any educational methods essentially different from those commended by long experience. The pedagogical tools may differ from the old ones, but the ultimate result, if it is worth while, will be those attributes of mind and character that have long been recognized as the distinctive marks of strong men and women.

As preliminary to a discussion of the conditions essential to the attainment of this result, we may safely establish certain premises on which to base any contentions that may follow. These premises, conceded on every hand, are the following: first, the subject matter of the class room should be concise and severely engage the student's mind; second, the instruction given, in whatever field, should represent the latest and best conclusions; third, this instruction, if it is to secure for the graduate an advantage over the merely practical man, must give a well-grounded acquaintance with fundamental facts and principles; fourth, the college should so react upon the young men and women that come within its influence as to develop in them high ideals of living.

There are three factors that are most

intimately related to these fundamental conditions, the teacher, the curriculum and as an outgrowth of these two that somewhat intangible influence we call college atmosphere.

What about the larger of these factors, the teacher? It should be required of him as one great essential that he be a man of scholarly spirit and attainments, and being such he should have opportunity for study and reflection. Is it not time to inquire whether we do not need a renaissance of the atmosphere of scholarship in our vocational colleges, an atmosphere that must first surround the teacher, there to be breathed in by the student? Because we have been exalting the man with a so-called practical touch, possessed of the ability to edify the farming public, through a pleasing way of discussing practical subjects or who hustles about doing things, is not our vision of the scholar as an essential factor in agricultural education and inquiry somewhat obscured, and if scholarship is to be discounted in favor of qualities that make for popularity, we may well be solicitous concerning the standards and effectiveness of agricultural instruction, a statement that is equally applicable to experiment stations as instruments of research.

It is a gross error to permit a young man, or any man, to believe that success with the people in conducting agricultural propaganda, or the possession of superficially built and glibly expressed practical knowledge, unsupported by a sound scientific training, constitutes an adequate reason why he should be a member of a college faculty or a station staff. Success in the energy-consuming activities of the institute platform, the fair exhibit, the railroad train or the demonstration field is not an evidence of fitness for class room or research work. We are guilty of a false estimate of values when we place a salary premium or any other premium on success in distributing diluted information, however valuable this effort may be, as against the function and influence of the quiet and patient scholar.

If the college is to nourish the moral character of a student, the teacher must be something more than a scholar. Character will not be much influenced by directly aiming at such a result through the teaching of ethics. Much more potent will be the general tone or atmosphere of college halls, an atmosphere that emanates from the teacher. In his hands, teaching the sciences should not only promote scientific accuracy, but should nourish integrity of thought and purpose. All the exercises of the class room should be pervaded by the ethical spirit. For these reasons the standards by which a faculty is selected should include something more than the possession of good character, and the necessary professional qualifications. The human attributes of the teacher are no less important.

We may consider certain dangers to college instruction arising from extension work. This work on the part of the college teacher is a menace to his efficiency, because such activities not only use the physical energy that should be reserved for the class room, but sooner or later they minimize or destroy the habit of study and the spirit of scholarship. The man who serves for any considerable part of his time as a purveyor of popular information is almost certain not to present to his students the latest and best knowledge in the best way, or to add much to the stock of knowledge.

Another danger to the teacher from a diversion of his thought to extension work of the popular kind is that unless he possesses unusual self-discipline and control, he will carry to the class room more or less

of the loose and dilute phraseology of platform discussion and will to a greater or less extent depart from the concise and severe terminology so essential to the best training conditions.

These are most unfortunate results. We should carefully guard and cherish the intellectual impulses and equipment of the teacher and the investigator, because they are the instruments whose edge must be fine if we are to be successful in rightly fashioning the minds and hearts of young men and women and in laying open the hidden recesses of truth.

What has been said concerning the qualities of the teacher and the necessity for defending him against the invasion of outside duties applies with equal force to the investigator. The experiment stations here represented, founded as research agencies, have rendered splendid service to agriculture and are now firmly established in the confidence of the people. Nevertheless, we should not let the popularity of these institutions cloud our vision or confuse our estimate of the real character of their work. They have mightily stirred the mass of agricultural knowledge, have conducted an extensive propaganda of existing information, have recast old facts and principles into new and profitable applications and have made some explorations of real value into the unknown, all of this to the great benefit of the farmer and his business. But the period through which we have been passing can justly be characterized as much more marked for its development of agencies and for its distribution of existing information than for its permanent additions to agricultural science.

Moreover, leaving out of account the extensive dispersion of the time and energy of experiment station workers into the highways and byways of agricultural extension and considering only our attempts at investigation, it may reasonably be doubted whether, broadly speaking, our efforts of inquiry have been conducted on a plane of spirit and method as high as that reached by the investigators of an earlier period. It may be that we have lived up to our present possibilities, doubtless we have, but whether we have or not, it is certain that unless the agencies constituted for research purposes can secure and maintain larger freedom in policy and more fully break loose from the restrictions of expediency imposed by semi-political relations and by misguided demands for popular efforts on the part of supposed investigators, we shall mostly continue to halt on the outskirts of great problems whose solution would render to agriculture the highest possible service. It is gratifying to be able to believe, however, that we are on the ascending plane in the stability and effectiveness of our research efforts.

These suggestions concerning the limitation of the activities of the teacher and investigator are not intended to be arguments against the eminently useful efforts directed toward enlightening and stimulating the public mind. These efforts should continue, but it is fair to inquire whether we have not reached a point in the development of agricultural education and the demands made upon it, where the widely distributed popular instruction and secondary education of all forms should be maintained through agencies organized especially for these purposes, to which the college of agriculture should be coordinated in an advisory relation. Extension instruction and secondary education if they are to work out the largest values, must be widely available and stimulate local initiative and activity. The college may well be a source of advice, and, when means are abundant through a corps of experts who shall be independent of other duties, it may aid in

giving the needed accuracy and direction to the knowledge that it is sought to impart. But such aid should serve to stimulate and supplement the activities of other agencies and of the various communities that are to be benefited and should be so related to the colleges as in no way to hamper their academic work.

Has not the time come when extension work should be carried on through the coordinated effort of the state department of education, the department or board of agriculture, the colleges, the normal and secondary schools, the churches, the grange, the railroads, the chambers of commerce and other business and commercial bodies, all of which should be associated in a board of direction and should contribute to a permanent and salaried faculty of instruction? There is every reason why the agricultural college should have an important place in the education of the public, but is there now any reason why it should attempt to compass the whole field or burden itself with the entire responsibility, financial or otherwise, for such efforts?

There are those who will argue, I suspect, that the closer limitation of the work of the college faculty to the higher ranges of academic training would cause these institutions to lose their vital connection with public thought and needs. We certainly have no use for a fossilized center of learning in these days when the college must be regarded as a public servant, but to prevent its petrification it is not necessary that the farmers' picnic, the grange hall, the institute platform or the railroad train shall be frequented by the teacher and investigator. These excursions from college halls may be replaced by expeditions for the careful study of social and economic conditions as they are seen on the farm and in the various business operations that are related to agriculture, with no loss, but rather a gain, in the value of the service rendered.

When an issue is raised concerning vocational curriculums we enter upon debatable ground. This audience needs not to be told that many a faculty session has been devoted to a vigorous, even heated, discussion over the relative proportions and distribution of studies in agricultural and engineering courses, for there are present many who are in the midst of a contest that is still being waged. Only general considerations concerning this much-debated matter are in order at this time.

A proper regard for a student's success in after life requires that at least three considerations shall enter into the use of his time and into the arrangement and subject matter of the course of study he is expected to pursue. These are the development of personal power, the cultivation of both the sense and understanding of social and moral obligations and preparation for vocational activity.

The development of personal power is placed first because it is the all-comprehensive factor in determining individual efficiency. It is not attained through the mere storing of information or through familiarity with technical details, for knowledge and skill are but instruments for use. It consists essentially of the power of initiative, the ability to think clearly and to reason sanely and fundamentally, and, above all, it involves that mastery of self and of the raw materials of life that lies at the foundation of all individual success.

Personal power is acquired through discipline, and so the disciplinary value of a course of study is a prime consideration. Have we not to some extent lost sight of the great and abiding truth that the intellectual and moral culture of man as a man

is the only road to either a social or a vocational uplift? In our anxiety to demonstrate the value of these institutions to the material interests of the nation, have we not over-commercialized the instruction, even the atmosphere, of our vocational schools and colleges? The leaders in engineering education are beginning to say so, and is it not true of agriculture? We may well give heed to the words of a recent writer who thus comments on the educational influence of the ancient guilds:

> The soul of this ideal education of the masses was the training of character. They had no illusions that the mere imparting of information would make people better, nor that the knowing of many things would make them more desirable citizens. In none of the higher walks of life does it ever cease to be more the question how much of a man one is, than how much he knows of his special business.

The cultivation of the sense and understanding of social and moral obligations is placed second because human relations and the quality of human effort are determinative factors in the larger successes and satisfactions of life, whether we consider the individual or the social body. It is sound doctrine to declare that, in the last analysis, the defeats of individuals and of nations are moral defeats. Moreover, we now see very clearly that the critical problems which face agriculture are no less social than vocational. Our greater weakness is not in our bread-winning capacity, but in unsound business ethics and in bad social adjustments.

And then, there is the larger relation of the educated man to national welfare. It has been said that the cure for the ills of democracy is more democracy. If more democracy is coming, and it seems to be, we shall sorely need the steadying influence of wise social leadership. The education of the masses is superficial. That keen observer, Mr. Bryce, has said that "it is sufficient to enable them to think they know something about the great problems of politics and insufficient to show them how little they know." Bishop Newman declares that "if a practical end must be assigned to a university course I say it is that of training good members of society. It is the art of social life and its end is fitness for the world." Another writer has observed that the land-grant colleges are ranked as an economic rather than a social force. If this accusation is just, these institutions should purge themselves of an unsound policy. We do violence to the highest interests of the individual and of society if we fail to cultivate in those over whom the mantle of a baccalaureate degree is thrown a sense and comprehension of their obligations to society.

It is a distorted training that emphasizes bread-winning capacity at the expense of fitness for social service. Our national welfare is already threatened by the divorcement of patriotic citizenship from industrial activity.

Preparation for vocational activity is placed last, but not because the equipment of the mind with the facts of science and their applications to the art of agriculture is in any sense unimportant. The colleges of agriculture are dealing directly with the subject matter that is related to the farmer's vocation and they will violate their obligations and limit their usefulness if they do not continue to do so.

In discussing the vocational and training value of courses of study in agriculture I shall simply be ranging myself on one side of this much debated question when I insist that these courses should present good pedagogical form and should lend themselves largely to training in the funda-

mental sciences and present the lowest feasible minimum of ultra-practical subjects.

Remarks concerning pedagogical form may not now be pertinent to any existing situation. It has been said, however, that, in the past, agricultural subjects have been taken out of the normal pedagogical order and placed among the studies of the freshman year, or otherwise distributed illogically in the curriculum, simply that a student's attention shall be held to agriculture and more graduates in agriculture thereby secured. Doubtless such transgressions are not committed now, but if they are they look very much like an attempt to lasso young men and drag them at the heels of expediency. What justification is there for invading the intellectual rights of a student or imperiling his future success by giving him less than the best possible training; and how useless such an expedient! We shall not coerce a man's choice of a life work, however hard we may try to do so. Young men will continue to enter the door that they believe opens to them the largest opportunity, as they always have done and as they ought to do.

It is the subject matter that should engage the attention of the agricultural student concerning which we are likely to differ most widely in opinion. Those who are seeking for members of a faculty or station staff are bound to concede that, as a rule, altogether too many graduates are poorly trained for these positions, largely because they are poorly fitted in the sciences fundamental to the line of work in which they offer themselves.

For instance, candidates for positions in horticulture are generally obliged to confess a woeful lack of acquaintance with physiological botany. Those supposed to be specially trained in animal nutrition rarely have the necessary knowledge of organic and biological chemistry, and graduates in agronomy are likely to be more familiar with superficial facts than with soil chemistry and the science of plant nutrition. Judging cattle, corn and fruit; grafting trees, visiting orchards, calculating rations are exercises of small training value, even small vocational value, compared with severe attention to the processes of nature that underlie agricultural practise of all kinds. If many of the colleges expect to give their graduates a good start on the road to success as teachers and station workers they should seriously consider a curriculum that deals more largely with the fundamental sciences and less with agricultural technics as a superstructure.

And should not the same policy be followed with those who are to enter practical agriculture? A fact of fundamental importance in this connection is that the farmer is equipped for success in farm practise not so much through expert handicraft as through a knowledge of conditions that determine the successful growth of plants and animals; in other words, an acquaintance with nature's processes. The mechanical details of agriculture are comparatively simple, but the control of nature's resources is complex and difficult. With great respect for the opinions of those who hold opposite views, I am constrained to express the conviction that the man is best prepared for the life of a farmer who knows the most about the fundamental sciences and their relation to his vocation, and for this reason I can but regard the time as comparatively inefficiently spent that is devoted in college to observations and exercises of an ultra practical character, or to gaining information that is easily acquired from the ordinary experiences of practical life. This doctrine may be reactionary but it is in accordance with move-

ments now in progress in other vocational schools. We have fallen into the error, it is to be feared, of regarding the student mind as a storage tank for useful facts rather than as an instrument to be fashioned into soundness and efficiency. We must never forget that the farmer is comprehended in the man. And when we realize that many of the graduates of these institutions will exert a dominating influence upon the mental and moral development of young men and women, we see a most important reason why their education should not be confined to the narrow line of technical training. And above all, as has been urged, these graduates are to be members of society.

After all, what are the supreme objects of education? It has been reported, though I do not credit the statement, that a member of an agricultural college faculty once declared that the business of his institution was to bring about the production of more hogs at greater profit. If this remark was made, what a spectacle it pictures! It places the hog at the pinnacle of educational aspiration with man as a lesser figure. In sharp contrast to this gross conception of educational ideals stand the sentiments of great minds who have seen broadly and clearly the larger issues of life.

Hill says of education that it should "quicken a man's mental perceptions, form in him the habit of prompt and accurate judgment; lead to delicacy and depth in every right feeling and make him inflexible in his conscientious and steadfast devotion to all his duties." Milton wrote that "the main skill and groundwork of education will be to temper the pupils with such lectures and explanations as will draw them into willing obedience, influenced with the study of learning and the admiration of virtue, stirred up with high hopes of living to be brave men and worthy patriots."

Listen to Mill:

> The moral or religious influence which a university can exercise consists less in any express teaching than in the pervading tone of the place. Whatever it teaches it should teach as penetrated by a sense of duty; it should present all knowledge as chiefly a means of worthiness in life, given for the double purpose of making each of us practically useful to our fellow creatures and of elevating the character of the species itself.

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A STUDY OF RETARDATION IN THE SCHOOLS OF MINNESOTA[1]

The Materials.—The statistics brought together in this paper were gathered, for the most part, in two separate investigations. One, relating principally to retardation, in all its aspects, was conducted under the auspices of the Minnesota Psychological Conference. The other, concerning itself mainly with the first year of retardation, or with repeaters, was made at the request of the Associated School Boards of Minnesota.

Part of the data collected was laid before these bodies at their respective 1910 meetings. Both reports have been combined, condensed, rewritten, and several sets of other interesting statistics introduced for comparative purposes.

The Schools Studied.—The schools contributing the data on retardation proper are fifty-five of the smaller systems of the state. They each maintain high schools, known in Minnesota as "state high schools," owing to the fact that they are carefully inspected and listed with the State High School Board for a large yearly special grant direct from the state treasury. They are, therefore, schools which are kept at a high state of efficiency.

Only Grade Pupils Considered.—Only the pupils in the grades below the high school are considered, for several reasons. First, the high school students are invariably promoted by subjects, hence accurate statistics as to

[1] Presented before Section L, American Association for the Advancement of Science, at the Minneapolis meeting.